



NSPW Responses to Agency 03/15/07 Comments
Draft Alternatives Screening Technical Memorandum
Ashland/NSP Lakefront Superfund Site

1. **General Comment:** For ex-situ treatment of soil unlimited excavation has not been discussed in Section 7. Unlimited excavation needs to be discussed in the technical memorandum.

Response

Unlimited excavation has been added to the revised draft of the Alternatives Screening Technical Memorandum (ASTM) in the retained options in subsection 7.3.2.7 (Ex-Situ Treatment).

2. **General Comment:** The remedial technologies for soil, sediment and groundwater have been discussed in this technical memorandum. Discuss the remedial technologies for the NAPL removal and treatment/disposal.

Response

General Response Actions (GRAs) regarding NAPL removal and treatment/disposal are discussed in the revised draft ASTM. Footnote 1 in Section 1 (Introduction) states "GRAs for the treatment and disposal of non-aqueous phase liquid (NAPL) are also discussed in this memorandum. However, the remedial technologies for NAPL removal and disposal are applied in combination with the other media".

3. **General Comment:** HRC and ORC need to be included for technology screening.

Response

A discussion of HRC and ORC has been added under subheading Enhanced Bioremediation in subsection 7.2.3.5 (In-situ Treatment)

4. **General Comment:** Since this is a Federal lead site, it is subject to the CERCLA on-site permit exemption. This should be discussed up front as a separate section and it should go through all the discussion and identify permits, approvals and reporting requirements that are ARARs and discuss how you will comply with the substantive requirements. You will not need to get state or local approvals for on-site activities, and there is discussion in the text and the tables that state you will.

Response

NSPW agrees that the CERCLA on-site preemption works to preempt the need for any state or local permit, approval or authorization and that only the substantive, but not procedural, requirements of such ARARs apply.

5. **General Comment:** Sections 3 and 4 will need to be updated to reflect the required changes to the RI report.

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Response

Sections 3 and 4 have an introductory qualifier that states SECTION (3.0 AND 4.0) WILL INCORPORATE FINAL EDITS FOLLOWING RECEIPT OF THE AGENCY COMMENTS TO THE REVISED FINAL DRAFT RI REPORT

6. **Section 5.2:** This section should include the State Air Program requirements (NR 400 Series). This appears in Table 5-1, and should be in Section 5.2.

Response

Subsection 5.2.4 (State of Wisconsin Air Pollution Control Standards – WAC NR 400 – 499) has been added to the text of the revised draft ASTM.

7. **Section 5.4:** This section identifies chapter 30 requirements. It is assumed that lake bed fill can not be completed without action of the State Legislature and Governor potentially making implementation difficult.

Response

The assumption that a lake bed fill can only occur with the action of the State Legislature and Governor is inaccurate. Rather, there are several available procedural mechanisms which might be used to authorize such fill and structure placement to accommodate a confined disposal facility (CDF).

*Section 30.12 permit: State of Wisconsin Statute Section 30.12 addresses the deposit of “any material” or placement of “any structure” upon the bed of any navigable waterway. Section 30.12 provides that approval may be given by WDNR via issuance of either a general or individual permit. Section 30.12 also recognizes that special authorization may be granted by the Wisconsin Legislature. In correspondence dated March 30, 2007, WDNR staff has advised their interpretation of Section 30.12 limits the Agency’s ability to issue permits that authorize deposits to “small amounts of incidental fill when associated with other structures.” The language of Section 30.12 does not contain such a limitation on WDNR’s authority. NSPW does not agree that the Agency’s authority is so limited. To the extent that authorization under Section 30.12 might be deemed necessary but not available to an aquatic CDF, this statutory requirement may be preempted as a process ARAR via CERCLA section 121 (e)(1) or on the basis that it improperly “restricts the range of options available to the EPA.” See, *United States v. Denver, City and County Of*, 100 F.3d 1509, 1512 (10th Cir. 1996) finding implied conflict preemption of a local zoning ordinance.*

Legislative lake bed grant: NSPW is aware of at least two aquatic CDFs that have been authorized in Wisconsin Great Lakes waters via legislative lake bed grant. Pursuant to its authority under Article IX, Section 1 of the Wisconsin Constitution, the Wisconsin Legislature may grant authority to utilize a portion of lake bed for purposes considered to be consistent with the public trust in those navigable waters. Such legislative lake bed grants have been made to

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authorize the CDF in the waters of Green Bay referred to as Renard (a/k/a Kidney) Island, and the CDF in the waters of Lake Michigan referred to as the Milwaukee Harbor CDF. Wisconsin Statute Section 13.097 provides that WDNR is to report to the Legislature the Agency's view of whether the lake bed grant is consistent with protecting and enhancing a public trust purpose. A legislative lake bed grant can be made only to a municipality; thus, if this mechanism is used either the City or County of Ashland would likely be designated as the lake bed grantee. Because a legislative lake bed grant is a form of legislative action, signature by the Governor would also be required.

Board of Commissioners of Public Lands Lease: State of Wisconsin Statute Section 24.39 authorizes the Board of Commissioners of Public Lands (BCPL) to enter into long-term (50-year), renewable leases of submerged lake bed for various purposes, including "improvements to water navigation, construction of harbor facilities, and recreation." State of Wisconsin Statute Section 30.11(5) directs WDNR to advise BCPL of its view as to the consistency of the proposed lease and associated use with the public interest. The BCPL can enter into leases with either municipal or private parties; however, the lessee must be the riparian property owner. If this mechanism is used, the City of Ashland as riparian owner would likely be the lessee and such a lease may well be consistent with the City's harbor development plans. BCPL leases do not require legislative or gubernatorial approval.

In light of the number of mechanisms that might be utilized to authorize an aquatic CDF, the comment is not entirely correct and indeed too limiting at this stage of the process. Design specifications for the CDF would need to satisfy the substantive statutory, public interest and public trust requirements; however, it is possible that all of these mechanisms may be considered process ARARs and thus subject to the CERCLA § 121(e)(1) permitting exemption as the CDF would constitute an "on-site" remedy as defined in 40 CFR § 300.400(e)(1).

8. **Section 5.5:** Identify the follow guidance as To-Be-Considered (TBCs), at a minimum, for implementation of alternatives in accordance with the NR 700 series:

- RR709, Guidance for Cover Systems as Soil Performance Standard Remedies
- RR519, Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance

There may be other technical guidance on the WDNR guidance page (http://dnr.wi.gov/org/aw/rr/archives/pub_index.html) that NSPW should consider as TBCs, but those listed above are the most important.

Response

The above referenced guidance has been added as TBCs to Tables 5-3 and 5-1, respectively. Two additional WDNR guidance documents have also been added as TBCs:

- RR556, Guidance for Management of Investigation Derived Waste
- RR583, Contaminated Water Discharge from Remedial Action Operations

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9. **Section 7.3.2 and Table 7.4:** Are there areas where an infiltration reduction cover would be beneficial for vadose zone soils to protect the groundwater? If so, the alternative should be retained.

Response

Please see the response to Comment 10.

10. **Section 7.3.2.4, Page 7-5:** For an engineered surface barrier it is stated that installation of a cap over areas with contaminated soil may not be required because asphalt pavement and a fine grained low permeability soil unit are currently behaving as engineered surface barriers. It is also stated that these barriers also restrict infiltration which prevents contamination leaching from the unsaturated zone.

The existing asphalt pavement and fine grained low permeability soil cannot be considered as an “engineered barrier” because the asphalt parking was not designed to act as an impermeable cap.

Even if the asphalt pavement was designed to be an impermeable cap, it is not inspected or maintained to meet the requirements of the impermeable cap. Furthermore, the integrity and ability of any asphalt pavement in the area to prevent infiltration of precipitation has not been established. The Remedial Investigation report refers the site soil as being “fill” material which varies considerably across the site and includes silts, ash, cinders, solid and liquid MGP wastes, wood, glacial till and building demolition debris. Many of the fill constituents appear to be permeable and it is highly questionable whether they will restrict infiltration and certainly will not prevent contaminant leaching from the unsaturated zone. Furthermore, the fill material is not a clean fill material. The fill material and asphalt were not designed and constructed to meet the specifications of an engineered barrier. Based on the information above the existing asphalt pavement and the fill material cannot be considered as engineered surface barriers. Therefore, include the following capping options for surface soil for the containment option:

- Asphalt Cap
- Clay Cap
- Multi-layer Cap consisting of 2-foot of clay, drainage layer, soil and top soil with vegetation.
- Multi-layer Cap with Geomembrane.

All of the above containment options need to be considered in the technical memorandum.

Response

A revised discussion of the suitability of existing and potential surface barriers has been added under subheading Engineered Surface Barriers in subsection 7.3.2.4 (Containment). The above capping options are included in this subsection.

11. **Section 7.3.2.4, Containment:** It is stated the in-situ treatment alternatives may be limited by site conditions. The existing NSPW facility building and buried structures (gas holders) may

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prevent the installation of injection or extraction wells. The remedial options should consider demolition of buildings and removal of gas holders as remedial options and that will make it easier to consider in-situ treatment technologies. Therefore, demolition of building and removal of buried structure should be considered for screening of remedial technologies.

Response

This comment applies to subsection 7.3.2.5 (In-situ Treatment). The text of this subsection has been revised to state "In the event the building and buried structures are removed, in-situ treatment would not be limited and could be implemented for the remaining contaminants in the filled ravine. Building demolition and removal of buried structures are considered with removal and ex-situ treatment alternatives described in Sections 7.2.3.6 and 7.2.3.7 below"

12. **Section 7.3.2.5, Chemical Oxidation:** For this remedial technology it is stated that chemical oxidation introduces oxidizing chemicals into the subsurface to degrade chlorinated VOCs to carbon dioxide and water end products.

Is chemical oxidation retained for treating chlorinated solvents? Provide rationale for retaining chemical oxidation for treating chlorinated solvents.

Response

Chlorinated compounds are not COPCs at the site. References to chlorinated solvents have been removed from the text.

13. **Section 7.3.2.5, Thermal Treatment:** For Electric Resistance Heating (ERH) it is stated that existing buildings, buried utilities and buried structures in the upper bluff may prevent implementation of this technology for soil and shallow groundwater contamination.

ERH has been successfully implemented in existing buildings and around buried utilities. The buried structure can be removed and ERH can then be implemented. Therefore, rationale for rejecting the technology for soil and shallow groundwater contamination is inappropriate.

Response

The following revised language has been added to Thermal Treatment under subsection 7.3.2.5 (In-situ Treatment): "Existing site buildings and buried structures at the upper bluff, and the wood waste layer at Kreher Park may limit implementation of this alternative for soil and shallow groundwater. If removal of buried structures is required, ERH may not be as feasible for soil and shallow groundwater as are removal and ex-situ treatment alternatives described in Sections 7.3.2.6 and 7.3.2.7."

14. **Section 7.3.2.5, Removal:** It is stated that typically removal is not feasible for wide- spread soil contamination with low to moderate contamination.

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This is not an appropriate rationale for rejecting the remedial technology. In the technical memorandum, removal is considered feasible for high level soil contamination. If high level soil contamination can be removed, then low to moderate soil contamination can also be removed.

Response

Subsection 7.3.2.5 (Removal) has been revised to include both limited excavation for high contaminant levels, and unlimited excavation for low contaminant levels.

15. **Section 7.3.2.7, Ex-Situ Treatment:** For Biological treatment only biopiles and land spreading was considered. A bio-slurry reactor was not considered. Include a bio-slurry reactor as a potential remedial technology.

Response

The text has been revised under the subheading Soil Excavation and Biological, Physical and Chemical Treatment in Subsection 7.3.2.7 (Ex-situ Treatment) as follows: "Soil washing is a water-based process for mechanically scrubbing excavated soil to remove contaminants by dissolving or suspending them in the wash solution. Wastewater used for soil washing is treated on-site prior to discharge. A bio-slurry reactor is a hybrid soil washing technique that is used to treat a slurry of wastewater and contaminated soil. A mobile unit will be used to treat (washed) soil on-site, and returned to the excavation as backfill material. Semi-volatile organics and hydrophobic contaminants may require the addition of a surfactant or organic solvent. A bench or pilot-scale treatability test may be needed to determine the best operating conditions and wash fluid compositions for soil washing and/or bio-slurry treatment."

16. **Section 7.3.2.7, Limited Soil Excavation and Disposal:** It appears that the document has already decided that for soil excavation only limited excavation will be necessary. This type of decision is made based on the clean up goal during feasibility study. Therefore, delete Limited from the sub-title.

Response

"Limited" has been removed from the subtitle of this subheading.

17. **Section 7.3.2.7, Limited Soil Excavation and Thermal Desorption:** It appears that the document has already decided that for soil excavation only limited excavation will be necessary. Therefore, delete Limited from the sub-title. For thermal desorption both low temperature thermal desorption and high temperature thermal desorption need to be considered.

Response

"Limited" has been removed from the subtitle of this subheading. Additionally, the text under Soil Excavation and Thermal Desorption in subsection 7.3.2.7 has been revised to describe both low temperature thermal desorption and high temperature thermal desorption.

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18. **Section 7.3.2.7, Limited Soil Excavation and Thermal Desorption:** Incineration has not been considered for ex-situ soil treatment. Include incineration as a remedial option.

Response

Subsection 7.3.2 (Ex-situ Treatment) has been revised to include the following: "Incineration is used to volatilize and combust solid or liquid phase contaminated waste. Incineration requires higher treatment temperatures than thermal desorption, and is typically used to remediate soils contaminated with explosives and hazardous wastes, particularly chlorinated hydrocarbons, PCBs, and dioxins. Incineration was not retained for screening because it is not as cost effective as thermal desorption."

19. **Section 7.3.2.7, Limited Soil Excavation and Physical/Treatment Disposal:** It appears that the document has already decided that for soil excavation only limited excavation will be necessary. Therefore, delete Limited from the sub-title.

Response

"Limited" has been removed from the subtitle of this subheading and other subheadings under subsection 7.3.2 (Ex-situ Treatment).

20. **Section 7.3.3.3, Containment:** As discussed in comment 2, existing fill material in the Kreher Park and asphalt cannot be considered an engineered barrier.

Response

The text has been revised under each of the subheadings (Implementability, Effectiveness and Cost) in subsection 7.3.3.3 (Containment) for engineered surface barriers. These revisions discuss the applicability of the existing cap installed at the seep area during 2002 and the existing buildings at the upper bluff as engineered surface barriers. The revised language also describes the need to evaluate other existing low permeability surface barriers (asphalt pavement) and upgrading these covers as necessary. The general fill at Kreher Park is not considered an engineered barrier in this revised text.

21. **Section 7.3.3.3, Containment:** It is stated that existing down gradient extraction well EW-4 would be operated for an extended period of time to prevent contamination from migrating off-site with groundwater from the ravine fill unit. There are four extraction wells that are cycled. The extraction rate for all wells is less than 0.5 gpm. Based on this the extraction rate for EW-4 is less than 0.125 gpm. So far it has not been demonstrated that a very low flow rate of 0.125 gpm is capable of containing off-site migration of contamination.

Response

The text under subheading Implementability in subsection 7.3.3.3 (Containment) has been revised to address this comment as follows: "Existing downgradient extraction well EW-4 was installed in the backfilled ravine to prevent contaminants from discharging from this shallow

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groundwater unit to the seep area at Kreher Park, and has been in operation since 2002. This well may need to be operated for an extended period of time to prevent contaminants from migrating off-site with groundwater from the ravine fill unit. A vertical barrier wall could also be installed at the mouth of the backfilled ravine as described in Section 7.4.5. This barrier wall will require operation of EW-4 or a similar extraction system to reduce the hydraulic pressures on the up gradient side of the wall. An evaluation of the volume of groundwater discharged from the backfilled ravine along with a capture zone analysis for EW-4 will need to be completed as part of the evaluation of the continued use of the extraction well, or use of an extraction system with a vertical barrier."

22. **Section 7.3.3.3, Containment:** For effectiveness of the surface barrier it is stated that the engineered barriers would also prevent infiltration. This is incorrect because neither existing asphalt nor fill were designed to be an engineered barrier. Describing fill as low permeable soil does not make it an engineered barrier.

Response

Please see the response to Comment 20. The text in this subsection has been revised to be specific regarding the use of existing surface barriers or upgrading them as necessary.

23. **Section 7.3.3.8, Ex-situ Treatment:** For implementability it is stated that on-site thermal treatment will result in significant disturbance. Explain how the disturbance will affect the implementability.

Response

The following revised language has been added under Implementability in subsection 7.3.3.8 (Ex-situ Treatment – Limited Soil Excavation and on-Site Thermal Desorption): "On-site thermal treatment utilizing a mobile treatment unit could be implemented, but will result in significant site disturbance. Ex-situ treatment will require the excavation of contaminated soil. At the upper bluff area, this will require removal of part of an existing building and buried structures (gas holders). Oversize debris that cannot be thermally treated will likely need to be transported off site for disposal. Treated soil would be returned to the excavation as backfill. Dewatering may be necessary to achieve acceptable soil moisture content levels for treatment, and debris (i.e. bricks, concrete, and wood) must be separated from soil for off-site disposal."

24. **Section 7.4.2.2, Institutional Control:** It is stated that because the Site is in an area serviced by municipal water supply, restriction would not restrict future site use. Clarify what is being said in this sentence.

Response

The following revised language has been added in subsection 7.4.2.2 (Institutional Controls): "Institutional controls for groundwater will require groundwater use/deed restrictions, or legislative action to prevent the use of groundwater within the Site boundaries. These

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institutional controls should not restrict future site use because the Site is in an area serviced by a municipal water supply (this eliminates the need for an on-site source for potable water)."

25. **Section 7.4.2.3, Monitored Natural Recovery:** Revise the title of this section to Monitored Natural Attenuation since this is describing groundwater. The first sentence is redundant, therefore, remove the first sentence.

Response

The title of this subsection has been revised, and the first sentence has been removed as directed.

26. **Section 7.4.2.4, Containment:** It is stated that the deep well injection is not feasible for this site. Provide detailed explanation on why the deep well injection is not feasible for this site.

Response

The text in subsection 7.4.2.4 (Containment) has been revised as follows (second paragraph): "Deep well injection is a liquid waste disposal technology. Extensive site characterization will be required to identify formations for disposal. These geologic units have not been investigated at the Ashland site. However, regional information indicates that the Copper Falls aquifer is underlain by the Oronto Sandstone (encountered in MW-2C and a water supply aquifer in the region), which in turn is underlain by crystalline pre-Cambrian basalt. It is unlikely that deep well injection in these units will result in isolation of contaminants. Consequently, deep well injection was not retained for screening because other remedial alternatives would be more cost effective and acceptable to the community and agencies."

27. **Section 7.4.2.4, Containment:** The vertical barrier has been rejected by just stating that the vertical barrier would not be feasible for the underlying Copper Falls aquifer. Explain why the vertical barrier for the Copper Falls aquifer is not feasible.

Response

The text in subsection 7.4.2.4 (Containment) has been revised as follows (third paragraph): "Engineered vertical barrier walls were retained for further evaluation as potential containment alternatives for shallow contaminated groundwater encountered in the ravine fill at the upper bluff and at Kreher Park. Vertical barrier walls would not be feasible for the underlying Copper Falls aquifer because this deep aquifer is confined by the Miller Creek formation creating strong upward gradients. Installation of a barrier wall for contaminants in the Copper Falls aquifer will require penetration of the Miller Creek, which will likely compromise the long-term integrity of the confining unit."

28. **Section 7.4.2.4, Downgradient Groundwater Extraction:** It is stated that EW-4 is currently being used to prevent the off-site migration of the contaminants. The average flow rate for EW-4 is less than 0.125 gpm. It has not been demonstrated that this low flow from the ravine is capable of preventing off-site migration of the contaminants. Let us assume that the average low

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flow is capable of preventing the off-site migration during normal conditions. During precipitation the flow from the ravine is expected to be more than 0.125 gpm and at that time EW-4 will not be able to prevent the off-site migration. Currently 4 wells are cycled; therefore, EW-4 is operational only for 25 percent of time. Therefore, contamination will continue to migrate for 75 percent of time when EW-4 is not operational. This needs to be clarified.

Response

The following revised text under DownGradient Barrier Wells has been added in subsection 7.4.2.4 (Containment): "As described in Section 7.3.3.3, existing downgradient extraction well EW-4 was installed at the mouth of the backfilled ravine to prevent contaminants from discharging from this shallow groundwater unit to the seep area at Kreher Park. It has been in operation since 2002. A final remedy for ravine groundwater could include continued operation of EW-4, or continued operation along with a vertical barrier wall installed downgradient from the extraction well (use of EW-4 will reduce the hydraulic head behind the vertical barrier). An evaluation of the volume of groundwater discharging from the backfilled ravine and a capture zone analysis for EW-4 will be necessary to evaluate which alternative will be more effective." See also the response to Comment 21.

29. **Section 7.4.2.5, Physical/Chemical Treatment:** PRBs are not retained for the under lying copper falls aquifer because other remedial alternatives may be more cost effective and efficient at achieving RAOs. It has not yet been demonstrated that other technologies when compared to PRBs are efficient and cost effective at achieving RAOs. The PRBs need to be retained for further evaluation.

Response

The following text has been added under the subheading Physical/Chemical Treatment in subsection 7.4.2.5 (In-situ Treatment): "PRB walls are limited to subsurface conditions where contaminants are bound within a continuous aquitard at a depth within the vertical limits of trenching equipment. PRB walls were not retained for the underlying Copper Falls aquifer. The top of the aquifer at the downgradient limit at Kreher Park is beyond 35 feet in depth. The contaminant mass within the DNAPL plume at this downgradient limit is below 75 feet. Although vertical walls have been installed up to 100 feet in depth, the confining conditions and the strong upward gradients in the Copper Falls aquifer will require penetration of the overlying Miller Creek confining unit. This will compromise the integrity of the confining unit. However, a PRB could be used as a remedial alternative for shallow groundwater encountered at the Site."

30. **Section 7.4.2.6, Groundwater and NAPL:** It is stated that EW-4 is currently being used to prevent the off-site migration of the contaminants. The average flow rate for EW-4 is less than 0.125 gpm. It has not been demonstrated that this low flow from the ravine is capable of preventing off-site migration of the contaminants. Let us consider that the average low flow is capable of preventing the off-site migration during normal conditions. During precipitation the

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flow from ravine is expected to be more than 0.125 gpm and at that time EW-4 will not be able to prevent the off-site migration. Currently 4 wells are cycled; therefore, EW-4 is operational only for 25 percent of time. Therefore, contamination will continue to migrate for 75 percent of time when EW-4 is not operational. This needs to be clarified.

Response

Please see the responses to Comments 21 and 28.

31. **Section 7.4.2.6, Groundwater and NAPL:** It is stated that groundwater extraction for containment for the copper falls aquifer was not retained for screening because this will provide little help with achieving RAOs. It has not yet been demonstrated that groundwater extraction for containment will provide little help and therefore this statement is considered speculative.

Response

References to RAOs have been removed from the text under the subheading Groundwater and NAPL in subsection 7.4.2.6 (Removal).

32. **Section 7.4.2.6, Groundwater and NAPL:** It is stated that 8,300 gallons of NAPL has been recovered since September 2000. Did 8,300 gallons of NAPL contain water? If it contained water how much water was present in 8,300 gallons of NAPL.

Response

The final draft RI report (January 25, 2007) describes the method of NAPL collection via a gravity separator. The effluent is treated through a series of liquid and air phase carbon units prior to discharge to the sanitary sewer. The separated NAPL is predominantly a sinking phase oil product in an emulsified state. Its high benzene content results in a flash point of less than 100° F, classifying the material as a characteristic hazardous waste. These same tests showed a water content of approximately 90 percent.

33. **Section 7.4.3.3, Monitored Natural Recovery:** Revise the title of this section to Monitored Natural Attenuation.

Response

The subtitle of this subsection and the text references have been revised as directed.

34. **Section 7.4.3.3, Monitored Natural Recovery:** It should state that additional shallow and deep monitoring wells would be required for MNA monitoring.

Response

The following final sentence has been added to the revised text in subsection 7.4.3.3(Monitored Natural Attenuation): "Existing wells could be utilized, but additional monitoring water table observation wells and piezometers installed in the Copper Falls aquifer will likely be required."

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35. **Section 7.4.3.4, Containment – Engineered Vertical Barriers:** It is incorrect to state that vertical barriers would not be feasible for the underlying Copper Falls aquifer.

Vertical barriers have been installed at depths of 100 feet. So the reason that the vertical barrier is not feasible for Copper Falls Aquifer is inappropriate.

Response

The following revised text has been added to subsection 7.4.3.4 (Containment – Engineered Vertical Barrier Walls and Barrier Wells): “Implementation of a vertical barrier wall for the underlying Copper Falls aquifer is feasible, but would require significant dewatering of the aquifer to lower the potentiometric surface. This aquifer is confined with strong upward gradients, and installation of a vertical barrier would require penetration of the overlying confining unit. This activity could jeopardize the integrity of the confining unit.”

36. **Section 7.4.3.4, Containment – Engineered Vertical Barriers:** It is stated that dewatering would be required to reduce the hydraulic head that will be created behind each barrier. This would require continued operation of existing EW-4 in the upper bluff area.

As stated in previous comments each extraction well is extracting at an average flow rate of less than 0.125 gpm. This flow rate is very low and may not be capable of reducing hydraulic head as stated in this section.

Response

Please see the responses to Comments 21 and 28.

37. **Section 7.4.3.4, Containment – Engineered Vertical Barriers:** For implementability it is stated that installation of vertical barrier wall for the underlying Copper Falls Aquifer would be extremely difficult. Deep vertical barriers have been installed and are implementable.

Response

The following revised text has been added under Implementability in subsection 7.4.3.4 (Containment – Engineered Vertical Barrier Walls and Barrier Wells): “The implementability of vertical barrier walls is considered high for shallow groundwater in the backfilled ravine and the Kreher Park fill. However, the implementability of vertical barrier walls for the underlying Copper Falls Aquifer is low. Hydrogeologic conditions (confined aquifer with strong upward gradients) would make installation formidable and potentially compromise the integrity of the confining unit.”

38. **Section 7.4.3.4, Containment – Engineered Vertical Barriers:** Remove last sentence in the discussion regarding implementability. The implementability of vertical barrier appears to be biased towards other technologies and actually does not have anything to do with vertical barriers.

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Response

The final sentence has been removed and the text revised under the subheading Implementability in subsection 7.4.3.4 (Containment - Engineered Vertical Barrier Walls and Barrier Wells).

39. **Section 7.4.3.4, Containment – Engineered Vertical Barriers:** As stated in the above comments the vertical barrier for Copper Falls aquifer is feasible and implementable; therefore, effectiveness for the vertical barriers for the Copper Falls Aquifer needs to be described.

Response

The following revised text has been added under the subheading Effectiveness in subsection 7.4.3.4 Containment - Engineered Vertical Barrier Walls and Barrier Wells): “The effectiveness of vertical barrier walls is considered high for shallow groundwater, but low for the underlying Copper Falls aquifer...The effectiveness of barrier wells in the Copper Falls is considered low because natural hydraulic containment already occurs.”

40. **Section 7.4.3.6, In-Situ Treatment – Air/Ozone Sparging:** For implementability it is stated that sparging is not feasible for remediation of free-phase hydrocarbon in source areas, it will likely be used in areas with low to moderate contaminant levels with another technology implementable for the source area. Why is the air/ozone sparging implementable for areas with low to moderate contaminants levels and not for high contaminant levels?

Response

The text under Implementability in subsection 7.4.3.6 (In-situ Treatment – Air/Ozone Sparging) has been revised to describe the use of this technology on NAPL/groundwater mixtures in conjunction with extraction wells (see also the revised text of the subsequent Effectiveness subheading). The following (final) sentence has been added under Implementability: “Ozone sparging is used for low to moderate concentrations of dissolved phase contamination, or for NAPL contamination, which will require groundwater/NAPL extraction.”

41. **Section 7.4.3.8, In-Situ Treatment – Electric Resistance Heating:** It is stated that ERH was not retained for shallow groundwater contamination because existing site buildings, buried utilities, and buried structures in the upper bluff area and the wood waste in layers in Kreher Park may prevent implementation. ERH has been successfully implemented inside buildings and near buried utilities. Therefore including buildings and buried utilities in the statement is questionable.

Response

Please see the response to Comment 13.

42. **Section 7.4.3.8, In-Situ Treatment – Electric Resistance Heating:** It is stated that ERH raises temperature of the soil and groundwater, which increases mobility of NAPL that can be

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recovered by extraction wells. Provide reference to sites where ERH has been successfully implemented to increase mobility of NAPL which is then recovered by extraction wells.

Response

The following revised text was added under Effectiveness in subsection 7.4.3.8 (In-situ Treatment – Electrical Resistance Heating): “NICOR, Inc. installed a low temperature ERH system in May 2006 at a former MGP site in Bloomington, Illinois. At this site, a 200 electrode ERH system is being used to raise the temperature of the soil and groundwater to 35° C. This increases the mobility of NAPL which is subsequently recovered by a dual phase vacuum extraction system. The residual groundwater removed with the dual phase system is re-injected to maintain moisture and the resultant electric field. Current Environmental Solutions (CES) reported over 5,000 gallons of product was recovered after the first three months of operation. As demonstrated by this project, ERH can remove a significant contaminant mass in a short time frame.”

43. **Section 7.4.3.8, In-Situ Treatment – Electric Resistance Heating:** It is stated that the removal of NAPL will also result in a reduction on the toxicity of the dissolved plume, and reduce potential for continued down gradient migration with groundwater, which will enhance the protection of human health and the environment. How much NAPL could be removed by ERH? What level of NAPL removal would start to show reduction on the toxicity of the dissolved plume and reduce potential for continued down gradient migration with groundwater which will enhance the protection of human health and the environment?

Response

The text under Effectiveness in subsection 7.4.3.8 (In-situ Treatment – Electrical Resistance Heating) has been revised as follows: “Although the rate and volume of NAPL recovery from full scale application of ERH cannot be determined at this time, NAPL removal will enhance the protection of human health and the environment.”

44. **Section 7.4.3.8, In-Situ Treatment – Dynamic Underground Stripping:** Effluent vapors are expected to be treated. Provide a description in the technology for the collection method of effluent vapors.

Response

The following text has been added (third paragraph) under subsection 7.4.3.8 (In-situ Treatment – Dynamic Underground Stripping): “Groundwater and NAPL are extracted by conventional groundwater extraction wells, and vapors are recovered by soil vapor extraction wells. A dual phase vacuum enhanced groundwater extraction system is used to recover groundwater, NAPL, and vapors concurrently. Volatilized contaminants are treated with vapor phase granular activated carbon prior to atmospheric discharge, or are incinerated in on-site boilers used to generate steam.”

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45. **Section 7.4.3.8, In-Situ Treatment – Dynamic Underground Stripping:** Pump and treat component for this technology needs to be described for this technology.

Response

Please see the response to Comment 44.

46. **Section 7.4.3.8, In-Situ Treatment – Dynamic Underground Stripping:** Provide the rationale for not including Hydrous Pyrolysis Oxidation (HPO) with this technology.

Response

The following text has been added (fourth paragraph) under subsection 7.4.3.8 (In-situ Treatment – Dynamic Underground Stripping): “Hydrous Pyrolysis/Oxidation (HPO) is sometimes performed concurrent with DUS to target residual contamination after DUS efficiency declines. It consists of steam and air injection, which creates a heated, oxygenated zone in the subsurface. Condensed steam and contaminated ground water migrate to the heated zone where it mixes with oxygen. Although the process may destroy some microorganisms impeding natural biodegradation, HPO enhances biodegradation of residual contaminants by stimulating other microorganisms that thrive at high temperatures (called thermophiles).”

47. **Section 7.4.3.8, Removal – NAPL and Groundwater Extraction and Treatment:** It is stated that groundwater and NAPL extraction using the existing on-site treatment system was retained for screening. Effectiveness of the existing system to collect NAPL is uncertain and not demonstrated; therefore, the first sentence should be removed. The existing wells which can be demonstrated to be effective in removing NAPL should be considered as a component of the NAPL and groundwater extraction system during design, only if this technology makes it into the selected alternative.

Response

NSPW respectfully disagrees that the effectiveness of the existing system to collect NAPL is uncertain and not demonstrated. As described under Groundwater and NAPL in subsection 7.4.2.6 (Removal), 8,300 gallons of NAPL and 1.5 million gallons of wastewater have been treated since the system began operation, a NAPL recovery of more than 0.5 percent of the entire flow volume. However, the text under Effectiveness in subsection 7.4.3.10 (Removal – NAPL and Groundwater Extraction and Treatment) has been revised as follows: “Although operation of the existing groundwater extraction system has resulted in the removal of contaminant mass in the source area, a significant volume remains. Extraction will be required for an extensive period of time to continue to remove the mobile fraction of the free-phase hydrocarbons, which will result in a reduction of the mass and toxicity of the dissolved phase plume. Additional extraction wells will shorten the restoration time frame.”

48. **Section 7.4.3.8, Removal – NAPL and Groundwater Extraction and Treatment:** It is stated that since the extraction well began operating, a drop in artesian pressure has been observed in

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the confined Copper Falls aquifer near the extraction wells. Excessive pumping may further lower artesian pressures which would allow NAPL to migrate deeper into the Copper Falls aquifer.

It has not been demonstrated that a drop in artesian pressure has been observed in the Copper Falls aquifer due to current pumping of the aquifer. Also, it has not been demonstrated that the artesian pressures are so high that it will prevent DNAPL from migrating vertically downward. These statements need to be deleted.

Response

NSPW respectfully disagrees that it has not been demonstrated that a drop in artesian pressure has been observed in the Copper Falls aquifer due to current pumping. A reference to Figure 3-7 in the Final Draft RI Report (January 2007) has been added under Implementability in subsection 7.4.3.10 (Removal – NAPL and Groundwater Extraction and Treatment) as follows: “However, since the extraction wells began operating, a drop in artesian pressure has been observed in the confined Copper Falls aquifer near the extraction wells (Figure 3-7 in the RI Report shows a decline of approximately 10 feet in the hydraulic head in the area of the existing extraction wells after pumping began).”

NSPW also disagrees that it has not been demonstrated that the artesian pressures are so high that it will prevent DNAPL from migrating vertically downward. The data showing the extent of the DNAPL mass is thoroughly described in Sections 5.2 (Potential Routes of Migration/Contaminant Transport Processes) and 5.3 (Contaminant Distribution and Trends) in the Final Draft RI Report. Additionally, further revised text has been added under Implementability in subsection 7.4.3.10 (Removal – NAPL and Groundwater Extraction and Treatment) as follows: “Excessive pumping may further lower artesian pressures, which would allow DNAPL to migrate deeper into the Copper Falls aquifer (artesian pressures have restricted DNAPL from migrating beyond approximately 75 feet in depth at the former MGP; the bulk of the DNAPL is found along the interface between the Miller Creek and the Copper Falls where the material has migrated furthest from the areas of the release). Consequently, any additional wells would be operated as low flow wells; wells would be spaced to minimize further pressure declines in the confined aquifer.”

49. **Section 7.4.3.8, Removal – NAPL and Groundwater Extraction and Treatment:** It is stated that the effectiveness of a NAPL and groundwater extraction system is considered moderate to high. Operation of the existing groundwater extraction system has resulted in the removal of a significant volume of contaminant mass in the source area. This has reduced the potential for off-site migration of contamination.

Based on volume of NAPL in the subsurface only a fraction has been removed and therefore it is incorrect to state that operation of the existing groundwater extraction system has resulted in the removal of a significant volume of contaminant mass in the source area. Since only a small

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fraction of contaminant mass has been removed it is incorrect to state that the contaminant mass removed so far has reduced potential for off-site migration. The off-site migration potential for contamination has not changed significantly. This section needs to be re-written based on what is stated above.

Response

As described in the responses to Comments 48 and 49, the text of this subsection has been revised to acknowledge that a large volume of NAPL remains in the subsurface (specifically the Copper Falls aquifer). The language stating that removal of a significant volume of contaminant mass has reduced the potential for off-site migration has been removed. However, the revised text also references the information in the Final Draft RI Report which describe existing hydrogeologic conditions that have prevented further significant migration of both the NAPL and dissolved phase plumes.

50. **Section 7.4.3.8, Removal – NAPL and Groundwater Extraction and Treatment:** It is stated that the effectiveness of a NAPL and groundwater extraction is considered moderate to high. Operation of the existing groundwater extraction system has resulted in the removal of a significant volume of contaminant mass in the source area. This has reduced the potential for off-site migration of contamination.

Based on volume of NAPL in the subsurface only a fraction of volume has been removed, therefore, it is incorrect to state that the operation of the existing groundwater extraction system has resulted in the removal of a significant volume of contaminant mass in the source area. Since only a small fraction of contaminant mass has been removed it is incorrect to state that removal of contaminant mass removed so far has reduced potential for off-site migration. This has not yet been demonstrated by the data and based on the mass of contamination still present at the site the off-site migration potential for contamination has not changed significantly. This section needs to be re-written based on what is stated above.

Response

Please see the response to Comment 49.

51. **Section 7.5.1, Chemical of Potential Concern:** It is stated that the screening of sediment alternatives focuses on PAHs as the primary COPCs. VOCs and metals are also considered in the screening of certain process options for treatment.

VOCs and metals are COPCs but the PRGs may be based on PAHs because VOCs and metals co-exist with PAHs. Therefore revise the above statement appropriately.

Response

The text has been revised as directed.

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52. **Section 7.5.2.4, Subaqueous Cap:** The bullet listed item in this section does not address free product found in the bay area. This section needs to reflect State Chapter 30 requirements. It should be assumed that lake bed fill can not be completed without action of the State Legislature and Governor potentially making implementation difficult.

Response

Please see the response to Comment 7.

53. **Section 7.5.2.4, Confined Disposal Facility:** The construction of CDF in the Great Lakes to dispose and contain contaminated sediments and free product may require acceptance by Army Corps of Engineers, State of Wisconsin, and GLNPO. This section needs to reflect State Chapter 30 requirements. It should be assumed that lake bed fill can not be completed without action of the State Legislature and Governor potentially making implementation difficult.

Response

Please see the response to Comment 7.

54. **Section 7.5.2.6, Dredging:** Although this alternative is retained in Table 7-9, the text should reflect that this alternative is retained. Clarify in the text that this alternative is retained for further evaluation.

The text

has been clarified to reflect that the dredging alternative will be retained.

55. **Section 7.5.2.7, Ex-Situ Treatment:** Low temperature thermal desorption (LTTD) is not mentioned as a technology to be considered for Ex-situ treatment. Include discussion and assessment of LTTD as an alternative technology.

Response

LTTD has been combined into the discussion of temperature ranges under the subheading Thermal Desorption in Section 7.5.3.8 (Ex-situ Treatment). However, due to the high TOC and wood fiber present it is likely that the high end of LTTD temperature operation will be needed to meet DRE standards. Additional testing for thermal treatability analysis will be required to evaluate the effectiveness of this technology. LTTD has been combined with HTTD in the discussion for Section 7.5.2.7 (Ex-situ Treatment)..

56. **Section 7.5.2.8, Ancillary Technology Including Disposal:** The CERCLA waste sent to off-site facilities has to meet the requirements of the U.S. EPA Offsite Rule.

Response

The text and Table 5-3 have been updated to include this ARAR.

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57. **Section 7.5.2.8, Ancillary Technology Including Disposal:** The CERCLA waste sent to off-site facilities has to meet the requirements of the U.S. EPA Offsite Rule.

Response

The text and Table 5-3 have been updated to include this ARAR.

58. **Section 7.5.3.3, Monitored Natural Attenuation:** The 53 ug PAH /g sediment clean up level has not yet been finalized and accepted by the regulatory agencies. Therefore, this will need to be changed after EPA approves a cleanup level.

Response

The text has been changed to reflect the sediment cleanup level of 2,295 ug PAH/g OC (9.5 ug PAH/g dwt at 0.415% OC) directed by EPA.

59. **Section 7.5.3.4, Containment – Subaqueous Capping:** The 53 ug PAH /g sediment clean up level has not yet been finalized and accepted by the regulatory agencies. Therefore, this will need to be changed after EPA approves a cleanup level.

Response

The text has been changed to reflect the sediment cleanup level of 2,295 ug PAH/g OC (9.5 ug PAH/g dwt at 0.415% OC) directed by EPA.

60. **Section 7.5.3.4, Containment – Subaqueous Capping:** It is stated that sediments exceeding the proposed sediment cleanup level of 53 ug PAH/g and associated debris would be dredged or excavated to a depth of approximately four feet which would provide sufficient depth for emplacement ...

Does this mean four feet of sediment excavation below wood pile/debris?

Response

The text has been revised to clarify that approximately the top four feet of sediment exceeding the sediment cleanup level of 2,295 ug PAH/g OC (9.5 ug PAH/g dwt at 0.415% OC) will be removed to provide sufficient depth for emplacement....

61. **Section 7.5.3.4, Containment – Subaqueous Capping:** It is stated that the caps are effective for low solubility contaminants.

There are high soluble VOCs present in the sediments. Therefore, capping may not be appropriate for the areas with high soluble VOCs. This needs to be described in this section.

Response

The text under the subheading Effectiveness in subsection 7.5.3.4 (Containment – Subaqueous

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Capping) has been revised as follows: "The more soluble VOCs also have higher biodegradation rates. The retention time for diffusion and advection may be modeled to determine the thickness needed for the bioactive zone of the cap based on compound specific degradation rates and equilibrium partition coefficients. The best measure of these characteristics is made by using site sediments and performing sequential batch leach tests. Due to the low potential upward groundwater gradient of the Site, advective transport will not greatly affect the cap thickness requirements and diffusion will likely be the primary transport mechanism for soluble VOCs. The capping column flux treatability test that is presently being conducted will also evaluate the effectiveness of several capping alternatives (carbon mat and different cap thickness, etc.) that will take into account diffusion, low upward gradient, and gas ebullition transport of NAPL. This test will evaluate all of these transport mechanisms using the most impacted sediment at the Site."

62. **Section 7.5.3.5 Containment-CDF:** Creation of a CDF may have significant institutional barriers. It would require approval of the Army Corps of Engineers (ACOE), EPA, WDNR, City of Ashland and other regulatory agencies. Include discussion of the role of ACOE and other regulatory agencies in the approval process and evaluation of the probability that approval may not be attained due to the presence of COCs and coal tar free product.

Response

Please see the response to Comment 7.

63. **Section 7.5.3.5, Containment –CDF, Dredging:** There is no mention of double suction cutterhead dredge equipped with a shroud to reduce suspended solids or hydraulic dredge in this section. Why are these dredges not considered?

Response

Several types of hydraulic and mechanical dredges that meet performance criteria developed in the remedial design will be considered.

64. **Section 7.5.3.5, Containment –CDF, Capping and Geomembrane:** For capping, a two to three foot sand cap with top soil and vegetative cover is being proposed. Use of Geomembrane has not been provided in the subsection. The sand cap is permeable and will result in significant infiltration within the sheet pile enclosure.

Response

Geomembranes are discussed in Section 7.5.3.5. The use of geomembranes has been added to Section 7.5.3.4.

65. **Section 7.5.3.6, Removal:** The text asserts that there is substantial potential for release of volatile contaminants to the air that could be caused by dredging activities. Coal tar from the former MGP facility is the compound which is found in the sediment as free phase product. Free

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phase coal tar is a viscous liquid similar in consistency to vegetable oil and is quite low in volatility and solubility which is comprised primarily of PAHs with some VOCs bound up in the mixture. That is why it is persistent in the environment; the PAHs are relatively stable compounds. Some of the sediment samples exhibit high Benzene and Naphthalene concentrations however it must be noted that these high concentrations are indicative of a free product coal tar mixture; the individual chemical constituents do not exist in a pure solvent form, they exist as a mixture along with the predominant PAHs (also very high in concentration in the sediment samples) which are extremely low in volatility. Thus, for instance, when removing wood debris from the sediment with an excavator or clamshell, it is the coal tar mixture which has low volatility, adsorbed to the wood debris that will be exposed to the atmosphere, not the pure solvent benzene or naphthalene. It is unlikely that concentrations of benzene or naphthalene would exceed OSHA 8-hr TWA for coal tar (400 mg/m³), benzene (3.2 mg/m³) or naphthalene (50 mg/m³). This is illustrated by the vapor probe data from the RI. The highest concentration of benzene found in an area known to have free product in the vicinity was 57 ug/m³ which is 1.78% of the OSHA TWA. Naphthalene was not even tested, likely because it is an order of magnitude less volatile than benzene (Henries coefficient 240) with a Henries coefficient of 22 ATM*M³water/M³ air.

Response

The process of dredging will stir up the sediments at the water/sediment interface and will result in significant mixing of particulate and free phase present in the fine grained material, sand and wood debris. It is this part of the dredging activity that likely will result in solubilization of benzene and naphthalene. The mass flux to air at the air/water interface is primarily affected by the dissolved concentrations. The air interface with sediments in the dredge bucket after it clears the water is not likely to be a significant source of air emissions during the dredge operations. Experience and testing has shown that in sediments where DNAPL and associated high PAHs were present at another sediment site on the Great Lakes, significantly higher air mass flux rates for naphthalene were also measured. The wind tunnel treatability testing currently being conducted with high NAPL and wood debris sediment samples from the Ashland Site will provide empirical data on air flux rates for modeling these emissions.

OSHA regulations for protection of remediation workers that are noted in this comment will be considered. However, the more stringent standards for protection of public health are referenced in Wisconsin Administrative Code NR 445.07 Table A (Emission Thresholds, Standards and Control Requirements for All Sources of Hazardous Air Contaminants). They include naphthalene with a maximum 24-hour standard of 1,258 ug/m³ (1.258 mg/m³). The benzene ambient air standard would likely be set around 1/100 to 1/1000 of the TLV (1.6 mg/m³) for protection of human health. In addition, the activities related to dewatering of sediments are likely more significant and potentially closer to the public than dredging operations, resulting in a greater potential to exceed ambient air human health standards. Consequently, the potential exists for release of VOCs to the atmosphere above health standards. This is being further

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evaluated by the site- specific testing and dispersion modeling currently in progress as part of the Treatability Testing work plan approved by the USEPA.

Please also note the following excerpt regarding monitoring during remedial action at sediment sites from the Executive Summary of the recently released (June 5, 2007) National Research Council's (National Academy of Sciences) report titled Sediment Dredging at Superfund Megsites: Assessing the Effectiveness:

"Environmental monitoring is the only way to evaluate remedial success, but monitoring at most Superfund sites has been inadequate to determine whether dredging has been effective in achieving remedial objectives (that has not been the case in several highly monitored pilot studies). Basic information was not collected at some sites, and others had only recently completed dredging, so long-term trends could not be assessed. EPA should ensure that adequate monitoring is conducted at all contaminated sediment megasites to evaluate remedial effectiveness. Some current monitoring techniques have proved useful in determining short-term and long-term effects of remediation, but further development of monitoring strategies is needed. Pre-remediation monitoring is necessary to adequately characterize site conditions and to assemble a consistent long-term dataset that allows statistically valid comparisons with future post-remediation monitoring data. Monitoring data should also be made available to the public in an accessible electronic form so that evaluations of remedial effectiveness can be independently verified."

66. **Section 7.5.3.6, Removal:** Use of dredge with a shroud reduces suspended sediments in the water column.

Response

Several hydraulic and mechanical dredges that meet performance criteria developed in the remedial design will be considered.

67. **Section 7.5.3.6, Removal:** An engineering control for minimizing release of dissolved or free phase contaminants to water beyond the Site should also include sheet piles. Include and describe sheet piles/sea walls as an engineering control.

Response

The text has been revised to state that temporary sheet piling will also be considered if redundant turbidity barriers and booms are not effective. In addition, dredging operations can be suspended during conditions that render redundant turbidity barriers and booms ineffective.

68. **Section 7.5.3.8, Ex-situ Treatment:** Hydrocyclones were used quite effectively at a similar EPA site, Manistique Harbor, that site had large quantities of logs, branches, wood debris, chips, pulp and sawdust to separate out sand. Hydrocyclones should be retained as a potential separation technology that could be applied to those parts of the site that contain higher amounts

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of sand. At this point it is not clear from the site data what the percentage of sand is compared to organics and free product, thus it needs to be retained as a potential alternative.

Response

The percentage of sand will vary with the areas and depth of dredging. It was observed in the sampling conducted for the treatability testing this year that some samples high in sand also contain globules of NAPL. The efficiency of separation of sand and NAPL using hydrocyclones would need to be tested to determine effectiveness in producing a decontaminated reusable material in addition to yielding a sufficient volume of sand to be dredged. This technology will be retained as directed.

69. **Section 7.5.3.8, Ex-situ Treatment:** Which of the dewatering techniques have been retained?

Response

The retained technologies for dewatering include the following:

- 1. Settling technology for sediment dewatering for both on-site containment and hydraulic or mechanical dredging,*
- 2. Barge dewatering using gravity settling for mechanical dredging,*
- 3. Plate and frame filter technology used for sediment dewatering and for dewatering excavated saturated soils, and*
- 4. Belt presses with porous belts used to compress and filter the sediments.*

70. **Section 7.6.3.1, Offsite Disposal:** The off-site facility should meet the U.S. EPA off-site rule for accepting CERCLA waste.

Response

The text and Table 5-3 have been updated to include this ARAR.

71. **Section 7.6.3.2, Ancillary Solid Waste:** PPE are considered to be investigated derived waste and should be handled in accordance with the guidance document to handle investigation derived waste.

Response

PPE will be evaluated and handled in accordance with the USEPA guidance document to handle investigation derived waste. The following text has been added under subheading Off-Site Disposal - Ancillary Solid Wastes in subsection 7.6.3.2 (Treatment Residuals): "Personal protective equipment (PPE) will be evaluated and handled in accordance with EPA guidance document to handle investigation derived waste (USEPA 1992)."

72. **Section 7.6.5, Monitoring:** Air monitoring will be necessary during sediment removal.

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Response

NSPW agrees with this comment. Air monitoring will be detailed in the RD/RA Planning Documents (please see also the response to Comment 65).

73. **Table 5-1:** This table needs to be updated. Same as comment #68 below.

- WI surface water quality standards are applicable, not a TBC.
- CBSQGs are a TBC and need to be in the table.
- NR 140 is applicable to the contaminated GW at the site, not just any new disposal or management.
- NR 720 is applicable to the contaminated vadose zone for soil, not just managed sediment that might be soil.

Response

It is not clear what the Agency is referring to in the statement "Same as comment #68 below". Regardless, these changes have been made to Table 5-1.

74. **Tables 6-1 and 6-2:** These tables need to be updated with appropriate RAOs and there seems to be some important State requirements missing:

- WI surface water quality standards
- CBSQGs
- NR 140 PALs for the contaminated GW (only federal MCLs are mentioned)
- NR 720 RCLs for contaminated zone soils.

Response

Tables 6-1 and 6-2 have been updated in accordance with the final RAOs provided by USEPA on April 25, 2007.

75. **Table 7-2, page 2:** In-Situ Chemical oxidation is listed as a process option to degrade "chlorinated VOCs". The primary COCs are coal tar and its components. VOCs such as Naphthalene and Benzene, are not chlorinated compounds. This option should be re-evaluated in light of the primary COCs at the site, not on the basis of chlorinated compounds.

Response

The reference to "chlorinated VOCs" has been removed from the Process Option column for In-situ Chemical Oxidation in Table 7-4.

It is further stated that In-Situ Chemical oxidation is effective for high levels of contamination in source areas. This is not the case when free product is present, especially when a potentially explosive material such as coal tar is combined with certain oxidizing agents, a runaway reaction could occur which could result in an explosion. Even with modified Fenton's reaction based compounds the amount of oxidizing agent required to mineralize the volumes of free product at this site would be prohibitively expensive. This alternative should not be retained for

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consideration.

Response

The SITE demonstration recently concluded at the Ashland Lakefront Site utilized a reagent (Cool-Ox) which does not cause an exothermic reaction when combined with coal tar residuals. Some vigorous reactions occurred in areas where free-product was present, but no uncontrolled reactions were observed. Although the results of the demonstration have not been fully evaluated, preliminary results on the existing free-product recovery system have shown a four to five times increase in daily free-product recovery. Based on these results, the alternative has been retained in the revised draft ASTM.

Table 7-10, page 2: Under the effectiveness column for the CDF alternative, it is stated that toxicity for all Site contaminants would be reduced by containment. Containment only reduces availability; it does not change the nature of the contaminants and thus has no effect on the toxicity of the contaminants. Remove all reference to reduction of toxicity for the containment alternative in this table.

Response

These references have been removed from Table 7-10. However, the meaning was that because there are no longer competing exposure pathways, there is a reduction in toxicity, albeit not through containment.